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# **PRATT & WHITNEY**

## **Voluntary Corrective Action Program**

### **Progress Report for Fourth Quarter - 2001**

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**PREPARED FOR**

**U.S. EPA Region I**

**JFK Federal Building  
Boston, MA**

**21st Progress Report**

**January 2002**



Loureiro Engineering Associates, Inc.

January 14, 2002

**U.S. EPA New England - Region I**  
Mail Code HBT  
One Congress Street, Suite 1100  
Boston, MA 02114-2023

Attn.: Mr. Ernest Waterman

**RE: 21<sup>st</sup> Progress Report**  
**Pratt & Whitney Voluntary Corrective Action Program**  
**LEA Comm. No. 68VA109**

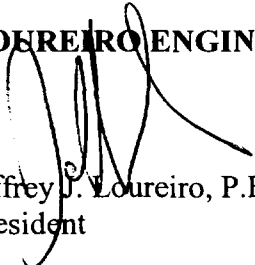
Dear Mr. Waterman:

Please find enclosed four copies of our 21<sup>st</sup> Voluntary Corrective Action Program Progress Report. As discussed, we will be submitting similar reports on a quarterly basis.

If you have any questions, please call me at (860) 747-6181.

Sincerely,

**LOUREIRO ENGINEERING ASSOCIATES, INC.**



Jeffrey J. Loureiro, P.E.  
President

pc: Lauren Levine, United Technologies Corporation  
David Ringquist, CT DEP  
Manu Sharma, Gradient Corporation

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**PRATT & WHITNEY  
VOLUNTARY CORRECTIVE ACTION PROGRAM  
PROGRESS REPORT FOR FOURTH QUARTER 2001**

**Prepared for  
U.S. EPA New England - Region I  
JFK Federal Building  
Boston, MA**

**January 2002**

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## **Table of Contents**

	<b>Page</b>
Section 1.0 Introduction	1
Section 2.0 Completed Investigation Activities (Last Three Months)	3
Section 3.0 Planned Activities (Next Three Months)	5
Section 4.0 Interim Measures	7

## **FIGURES**

Figure 1 VCAP Timeline

## **APPENDICES**

Appendix A Proposed Groundwater Monitoring Plan – Pratt & Whitney, North Haven, CT

## **ACRONYMS**

CSM	Conceptual Site Model
CT DEP	Connecticut Department of Environmental Protection
EI	Environmental Indicator
ETAL	Experimental Test Airport Laboratory
EPA	Environmental Protection Agency, Region I
LEA	Loureiro Engineering Associates, Inc.
ORO	Southington Overhaul & Repair Operations Facility
RCRA	Resource Conservation and Recovery Act
TM	Technical Memorandum
TPH	Total Petroleum Hydrocarbons
USTM	Unit-Specific Technical Memorandum
UTC	United Technologies Corporation
VCAP	Voluntary Corrective Action Program
VOCs	Volatile Organic Compounds

**UNITED TECHNOLOGIES CORPORATION**  
**PRATT & WHITNEY**  
**Voluntary Corrective Action Program**  
**Progress Report for Fourth Quarter 2001**

**1. INTRODUCTION**

**1.1 General**

This Progress Report is the 21<sup>st</sup> in a series of progress reports to be prepared and issued on a quarterly basis during the Voluntary Corrective Action Program (VCAP). The progress reports are intended to provide the Environmental Protection Agency, Region I (EPA) with an overview of (1) the work performed during the reporting period, (2) a look ahead at activities planned for the next reporting period, and (3) the progress of interim measures being implemented. The progress reports also serve as the vehicle for conveying minutes of the semiannual progress meetings with EPA and for summarizing key program issues that have arisen during the reporting period. The progress reports are not intended as a substitute for technical reports summarizing investigation and/or remediation activities, which will be prepared as appropriate throughout the course of the Program. Please see the individual site discussions for mention of any impending or submitted technical reports.

**1.2 VCAP Schedule and EPA Comments**

A revised VCAP schedule is provided in Figure 1. The completion date for achieving stabilization at the North Haven facility is projected to be April 1, 2002. The revised Environmental Indicator (EI) documents were submitted in May 2001 and are awaiting EPA approval. Additionally, a revised EI for Groundwater Migration Under Control for the Willgoos facility will be submitted by January 31, 2002. It is anticipated that EPA comments will be received during the next reporting period. The completion date for stabilization at the Willgoos facility is currently projected as July 1, 2002. However, that date is dependent upon receipt of EPA comments during the next reporting period. No other changes were made in the schedule. It is anticipated that completion of stabilization activities at all facilities will occur by December 31, 2002. No formal EPA comments were received during this reporting period.

**1.3 Semiannual Progress Meeting**

A Semiannual Progress Meeting was held on December 10, 2001 at EPA in Boston, MA. Participants included Ernie Waterman, Carolyn Casey, Aaron Gilbert, Lauren Levine, Phil Sheridan, Joe Tota, Brian Quillia, Manu Sharma, and Jeff Loureiro. An overview of the issues discussed is provided below by facility. The next meeting is planned for June 2002.

**Willgoos Facility:** Aaron indicated that the *Documentation of EI Determination for Current Human Exposures Under Control* would be signed no later than January 31, 2002. With respect to groundwater migration, Aaron stated that long-term groundwater monitoring is still an issue.



He has not yet reviewed the submittal in detail and requested a revised submittal prior to his review that reflects the modifications made to the *Documentation of EI Determination for Current Human Exposures Under Control*.

**East Hartford, Main Street Facility:** The current status of the Willow Brook remediation, interplant pipeline investigation, property line groundwater investigation, and Airport/Klondike area activities were presented. Due to the absence of Juan Perez, further discussions were tabled for a future meeting.

**North Haven Facility:** Ernie indicated that both EIs would be signed no later than January 31, 2002. A conceptual plan for continued groundwater monitoring was presented and discussed. Ernie noted that he would like to see semi-annual monitoring for the first few years and requested that UTC submit a written proposal (see Appendix A).

**Middletown Facility:** Carolyn stated that she expects to have comments to UTC by the end of 2001. Issues discussed included responding to comments on the facility's Conceptual Site Model (CSM), Carolyn's need for a better understanding of the surface water evaluation process, and her desire to see a comparison of potable water treatment effluent to the Connecticut Department of Environmental Protection (CT DEP) groundwater protection criteria.

**Southington Overhaul & Repair Operations (ORO) Facility:** Carolyn provided draft comments on a memo submitted by UTC in regard to the lack of relationship between contamination detected in private wells and that present on the ORO site. The private well issue was discussed in some detail and Carolyn indicated that she would like UTC to sample the private wells. Carolyn also noted that she hasn't been able to find screened intervals for all wells in the database provided by UTC.

**Rocky Hill Facility:** A brief overview of the ongoing investigation/remediation was presented (A separate meeting will be held to discuss this site in detail). UTC asked if it is necessary to continue indoor air monitoring given the current understanding of the site (i.e. no exceedances of volatilization criteria). Ernie said he would like the monitoring to continue until a final decision is made with respect to carbon disulfide at the facility.

## **2. COMPLETED INVESTIGATION ACTIVITIES (LAST THREE MONTHS)**

This section provides a brief description of the investigation activities undertaken at each site during the last three months. Maps showing sampling locations updated through the reporting period are provided in the Appendices along with laboratory analytical data tables inclusive of data received through the reporting period, as appropriate.

## **2.1 East Hartford**

### **2.1.1 Klondike**

EPA, United Technologies Corporation (UTC), and Loureiro Engineering Associates (LEA) have been working cooperatively in the preparation of the report for the Airport/Klondike area. For this reason, and to avoid duplication, no additional information is provided in this Progress Report.

### **2.1.2 Main Plant**

Construction activities associated with the remediation of Willow Brook and Willow Brook Pond continued through this quarter. Activities completed during this reporting period include final demolition of the oil/water separator structure; ongoing dewatering activities within the active excavation areas; construction of two temporary groundwater treatment facilities; excavation and offsite disposal of 29,839 tons of contaminated soil, sediment, and concrete, from within the limits of the upper pond, oil/water separator area and the eastern portion of the lower pond; confirmatory sampling and documentary surveys; construction of the engineered control (cap) and related restorations within the upper pond; and submission of the second quarterly progress report detailing the above activities. A copy of the progress report was mailed to EPA on December 12, 2001.

As a result of unforeseen conditions and expansion of the project scope, the construction activities, site restoration and the establishment of vegetation are anticipated to continue through May 2002. As a result of the extension of the overall construction period, the completion dates for post-remediation reports and Environmental Land Use Restrictions have also been extended to November 2002.

It is currently estimated that upon completion, approximately 31,600 cubic yards of contaminated soil and sediment will have been excavated and disposed of off the site. This represents an increase of over 150 percent from the approximate 12,500 cubic yard estimate. The additional volume of contaminated soil results from two factors. First, greater than anticipated lateral and vertical extent of contamination in planned remediation areas has resulted in a significant expansion of excavation necessary to achieve remediation goals. Second, this is due to the decision to complete excavation beyond the limits required in Consent Order SRD-130 in select areas of the site where, due to physical constraints, the performance of future remediation would not be cost-effective or prudent.

The Step 4 groundwater investigation was performed at the Main Street facility and adjacent off-site properties in accordance with the *Work Plan For Groundwater Investigation In Support Of VCAP Risk Assessment (Step 4)* submitted to the EPA in August 2001. The Step 4 investigation included the installation of permanent monitoring wells and screen points in the area near the Main Street and Willow Brook intersection. In addition, one permanent monitoring well pair was installed to the west of the Experimental Test Airport Laboratory (ETAL) area. The investigation intended to provide supplemental information in the vicinity of Willow Brook to assist in determining whether the Willow Brook channel acts as a pathway to contamination off-site and to determine the width of the plume at this location. In addition, the investigation



intended to provide depth profiling information near the property line to the west of the ETAL area. During this reporting period additional temporary screen points were installed at an off-site property near the intersection of Willow Street and Main Street. The intent of this supplemental investigation was to determine the characteristics of the plume of contamination migrating off-site at this location. The results of the Step 4 investigation, as supplemented by these data, will be provided during the following reporting period.

## **2.2 Willgoos**

Written draft comments were received from the EPA regarding the March 2000 *Documentation of Environmental Indicator Determination (EID) for Current Human Exposures Under Control* at the Pratt & Whitney Willgoos facility located on Pent Road in East Hartford, Connecticut. Final comments were received from the EPA on October 9, 2001. In response to these comments, UTC submitted a revised *Documentation of EID for Current Human Exposures Under Control* on October 12, 2001.

UTC is currently in the process of revising the *Documentation of EID for Groundwater Migration Under Control*. The revisions being made are those necessary to incorporate language from the *Documentation of EID for Current Human Exposures Under Control*. This revised Documentation of EID will be submitted by January 31, 2002. It is anticipated that UTC will receive EPA comments to this Documentation of EID during the next reporting period.

## **2.3 Colt Street – Stabilized**

## **2.4 Rocky Hill– Stabilized**

## **2.5 North Haven**

EPA is currently reviewing the revised documents submitted on May 3, 2001. Provided as an attachment to this progress report is a proposed groundwater monitoring program. The groundwater monitoring program has been designed to allow for the collection of data to ensure the site continues to meet the criteria for stabilization.

The property was sold during this reporting period. Under a Connecticut Transfer Act Form III filing, Pratt & Whitney retained the obligation to investigate and remediate the site. The facility is currently being leased by Pratt & Whitney.

## **3. PLANNED ACTIVITIES (NEXT THREE MONTHS)**

This section provides a brief description of the investigation activities planned at each site during the next three months.





### **3.1 East Hartford**

#### **3.1.1 Klondike**

Preparation of sections of the summary report documenting the Airport/Klondike investigation and remediation to satisfy the RCRA Corrective Action requirements will be continuing. Together with the sections of the summary report, presentation of Technical Memoranda (TMs) will continue during future review meetings. All proposed Unit-Specific Technical Memoranda (USTMs), which address the unit-specific soil investigations, have been submitted to EPA. Submission of the remaining sections of the summary report will continue and are expected to be completed by the first quarter of 2002.

EPA, UTC, and LEA continue to work cooperatively in the review of documents relating to the North Parcel of the Airport/Klondike. The documents include the North Parcel report (prepared by LEA) documenting investigation/remediation activities performed at the following environmental units: former Silver Lane Pickle Company; the North Klondike Undeveloped Land Outside Storage Area; the North Klondike Undeveloped Land Soil Piles; the former Army Barracks Area; and the Rentschler Airport Area) and the Marin Report (prepared by Marin Environmental Inc. for the Connecticut Office of Policy and Management for the transfer of the Stadium parcel).

The North Parcel includes an approximately 72-acre parcel (Stadium Parcel) and an approximately 3-acre parcel (Supplemental Stadium Parcel) that have been transferred to the State of Connecticut for a football stadium. UTC has submitted a letter to EPA requesting that the EPA begin the process of releasing the Stadium Parcel from corrective action obligations, based on the prior investigation and EPA review, indicating that there are no environmental issues on that parcel.

#### **3.1.2 Main Plant**

Site activities associated with the remediation of Willow Brook and Willow Brook Pond continued through this quarter. Substantial completion of the project is estimated to occur by May 2002. Planned activities to be performed during the next reporting period include the excavation and offsite disposal of contaminated soil and sediment within the limits of the project site and the construction of the various engineered controls within and immediately surrounding Willow Brook and Willow Brook Pond.

Additional groundwater investigations in support of the VCAP risk assessment (Step 4) have been completed at the East Hartford facility. The results of these investigations will be reported during the following reporting period.

### **3.2 Willgoos**

A revised *Documentation of Environmental Indicator Determination Groundwater Migration Under Control* will be submitted to EPA during the next reporting period.



The next indoor air monitoring event is expected to be performed at the facility in June 2002. The results will be submitted to EPA during the following reporting period.

#### **3.4 Colt Street– Stabilized**

#### **3.5 Rocky Hill– Stabilized**

An indoor air monitoring event is expected to be performed at the facility in April 2002 and the results will be submitted to EPA during the following reporting period.

#### **3.5 North Haven**

Environmental Indicator reports for both *Human Exposures Under Control* and *Migration of Contaminated Groundwater Under Control* for the North Haven facility were submitted to the CT DEP and the EPA on March 28, 2000. A revision to the original submission was submitted on May 3, 2001.

It is anticipated that the EPA will render a decision that the site is stabilized during the next reporting period. Following that determination, the groundwater monitoring program detailed in **Appendix A** will be implemented.

### **4. INTERIM MEASURES**

This section provides a summary of some of the interim measures undertaken during this VCAP progress-reporting period. United Technologies Corporation/Pratt & Whitney is continuing to collect information on interim measures performed at each site and will provide a summary of any additional interim measures identified in the subsequent progress reports.

No Interim Measures were performed at the East Hartford, Willgoos, Colt Street, Rocky Hill or North Haven facilities during this reporting period.

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**Comments:**

**FIGURE 1: VCAP TIMELINE**

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## **Appendix A**

### **Proposed Groundwater Monitoring Plan**

**Pratt & Whitney, North Haven, CT**

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**PROPOSED  
GROUNDWATER MONITORING PLAN**

**PRATT & WHITNEY  
NORTH HAVEN, CT**

**January 2002**

**Prepared for**

**UNITED TECHNOLOGIES CORPORATION  
One Financial Plaza  
Hartford, CT 06101**

**Prepared by**

**LOUREIRO ENGINEERING ASSOCIATES, INC.  
100 Northwest Drive  
Plainville, Connecticut**

**Comm. No. 68VA109.001**

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## Table of Contents

	Page
1. PURPOSE AND SCOPE	1-1
2. FACILITY INFORMATION	2-1
3. PROPOSED GROUNDWATER MONITORING SCHEDULE	3-1
4. METHODOLOGY	4-1
4.1 Groundwater Monitoring	4-1

## DRAWINGS

Drawing No. 1     Monitoring Well Locations

## ACRONYMS

DNAPL	Dense Non-Aqueous Phase Liquids
EPA	Environmental Protection Agency, Region I
LEA	Loureiro Engineering Associates, Inc.
NTU	Nephelometric Turbidity Units
QA/QC	Quality Assurance/Quality Control
SOP	Standard Operating Procedure
VCAP	Voluntary Corrective Action Program
VOCs	Volatile Organic Compounds



## 1. PURPOSE AND SCOPE

The present document proposes a groundwater monitoring program in support of stabilization (CA750 – *Migration of Contaminated Groundwater Under Control*) at the Pratt & Whitney facility in North Haven CT. The intent of the program is to verify that contaminated groundwater remains within the dimensions of the “existing area of contaminated groundwater.” Specifically, the program will monitor groundwater concentration levels for volatile organic compounds (VOCs) in the area of a plume of groundwater contamination. The plan provides a list of wells to be sampled, monitoring frequency, analytes monitored and provides a brief discussion of the proposed methodology. The groundwater monitoring is proposed to be performed on a semiannual frequency for a period of two years. The program will be reevaluated at that time.



## **2. FACILITY INFORMATION**

The Pratt & Whitney North Haven facility is located at 415 Washington Avenue in North Haven, Connecticut. The facility is located between Washington Avenue to the east and the Quinnipiac River to the west, and is bordered by residential and commercial/industrial properties to the north. To the south and west the property is bordered by undeveloped land. Immediately to the east, the Boston and Maine Railroad border the property. The facility consists of a 1,200,000-square foot main factory building, a powerhouse, and several ancillary structures on approximately 160 acres of land. The facility is used for the manufacture and testing of jet engine components.





### 3. **PROPOSED GROUNDWATER MONITORING SCHEDULE**

The proposed groundwater monitoring program will include monitoring for VOCs at three existing monitoring wells on the western part of the facility in proximity to the Quinnipiac River. Monitoring wells MW-57-S1 and MW-33-S1 intersect the water table at the northern and central portions of the plume, respectively. Monitoring well MW-34-S1 intersects the water table downgradient of the southern limit of the plume. The well locations are identified in Drawing No. 1. Additional well details are provided below:

<b>Mon. Well</b>	<b>Screened Interval (ft)</b>
MW-57-S1	3-13
MW-33-S1	5-10
MW-34-S1	5-9

The proposed monitoring will be performed in April and October 2002 and 2003. Annually, the groundwater monitoring data will be summarized in a report that will be submitted to the Environmental Protection Agency (EPA). The need for further monitoring will be evaluated upon completion of the second year of monitoring.



## **4. METHODOLOGY**

### **4.1 Groundwater Monitoring**

The headspace of all wells will be screened immediately upon opening. The wells will also be checked for the presence of dense non-aqueous phase liquids (DNAPL). A bailer will be lowered to the bottom of the well and retrieved to assess the presence of any standing free product. Prior to sampling each well, the depth to water and total depth of the well will be recorded. From this information the total volume of water contained in each monitoring well will be calculated. The water will be purged initially and parameters such as pH, temperature, and specific conductance will be recorded. Once the initial volume of water is removed, the monitoring well will be purged until physical parameter stabilization is achieved or until all standing water is evacuated (Loureiro Engineering Associates Inc., LEA Standard Operating procedure *SOP for Groundwater Sampling and Analysis*). Turbidity measurements will also be obtained and additional purging will be performed until the turbidity measured is less than 5 Nephelometric turbidity units NTU, if practicable. A maximum of 5 well volumes will be purged from each well. A bailer will be used for sampling for VOCs from the existing monitoring wells. The containers will be sealed, placed in a cooler, and shipped to a laboratory selected by Pratt & Whitney under chain-of-custody procedures for the analyses noted above.

Trip blanks, equipment blanks, and duplicate/replicate samples will be submitted for analysis for quality assurance/quality control (QA/QC) purposes as specified in the Voluntary Corrective Action Program (*VCAP*) *Work Plan*. During each event one trip blank, one duplicate, and one equipment blank will be collected. No performance evaluation samples will be collected.

Water level measurements will be obtained only from the three wells being monitored. No groundwater contour map will be generated.



**DRAWING No. 1**

**Proposed Groundwater Monitoring Plan**

**Monitoring Well Locations**

**US EPA New England  
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**Comments:**

**DRAWING 1: PROPOSED GROUNDWATER  
MONITORING PLAN - MONITORING WELL  
LOCATIONS**

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